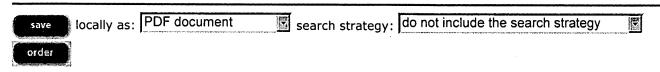


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## Accession number & update

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#### **Title**

Structured iteratively decodable **codes** based on **Steiner** systems and their application in magnetic recording.

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# **Abstract**

This paper introduces a combinatorial construction of a class of iteratively decodable **codes**, an approach diametrically opposed to the prevalent practice of using large, random-like **codes**. Our **codes** are well-structured and, unlike random **codes**, can lend themselves to a very low complexity implementation. A systematic way of constructing **codes** based on **Steiner** systems and the Z/sub nu /, group is presented, and a hardware efficient encoding algorithm is proposed. A substantial performance improvement of high-rate **Steiner codes** over the existing schemes used in magnetic recording systems is demonstrated. (38 refs).

#### **Descriptors**

<u>combinatorial-mathematics</u>; <u>iterative-decoding</u>; <u>magnetic-recording</u>; <u>random-codes</u>.

# **Keywords**

combinatorial construction; iteratively decodable codes; random like codes; hardware efficient encoding algorithm; performance; high rate **Steiner codes**; magnetic recording systems.

# Classification codes

B3120B (Magnetic recording).

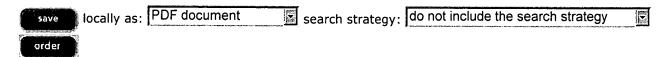
B6120B (Codes) .

(Combinatorial mathematics). B0250

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